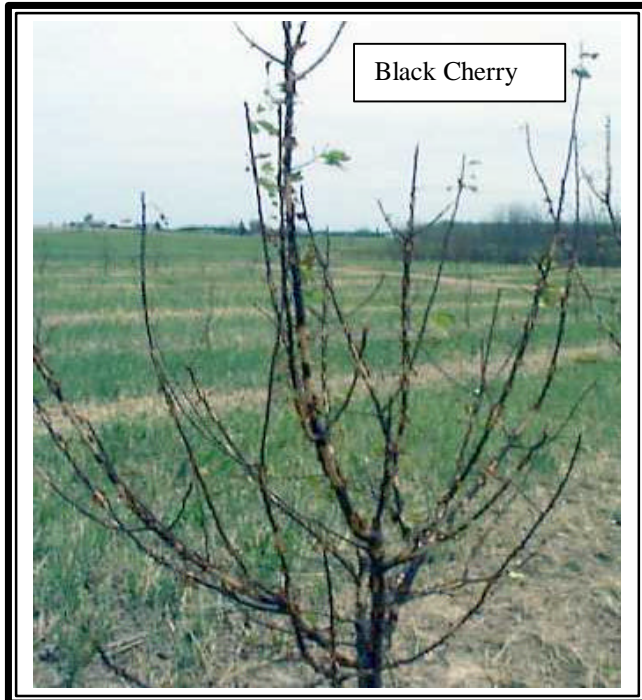


# HAIL DAMAGE - SYMPTOMS, SIGNS AND MANAGEMENT OPTIONS

## Wisconsin DNR - Forest Health Protection, May, 2000

During May, 2000, hail storms caused significant property and forest damage in central and northeastern Wisconsin. These storms, often accompanied by high winds, caused a variety of injuries to young and established trees and shrubs. This publication describes these damages and provides management options.



### YOUNG (<10 years old) CONIFERS & HARDWOODS

Young conifers and hardwoods, fully exposed to the hail, suffered two types of damages:

- 1) Small to large multiple wounds on the west side of the main stem and twigs. The hail often stripped the bark, exposing wood.
- 2) Damage and destruction of the buds

#### **Conifers**

Even though trees have a natural ability to close wounds and continue to survive, the **number and size** of these wounds is too large for the trees to recover. Most of these small stems will desiccate and die within the next month. Many of the buds on these trees have also been damaged thus very little new foliage will be produced in 2000. This will reduce the "energy" the tree has to close its wounds. **Most of these trees will die; there is no management strategy that will prevent this.**

#### **Hardwoods**

Young hardwoods also suffered multiple wounds, stripping of the bark and bud damage. When hardwood buds or foliage are damaged, they respond by producing new buds and foliage during the summer. **Hardwoods with only a few(<10) small (<1/4" wide) wounds may survive.** If you observe only a few wounds, carefully prune off the affected branches (but not more than 1/4 of the tree's branches) so the tree puts its energy into feeding its healthy portions. **Hardwoods with >10 wounds or with a few large (>1/4" wide) wounds are likely to die this year. If they survive, the multiple wounds will provide infection sites for fungi that could cause branch mortality.** Do not bother applying any wound dressings to any of these trees. The natural wound closure process is more effective without the dressing. Some young hardwoods (**oak, ash, cherry**) sprout well. **An alternative management for these species includes cutting these young trees about 1 inch above the ground as soon as possible (no later than early June) to encourage sprouting.**

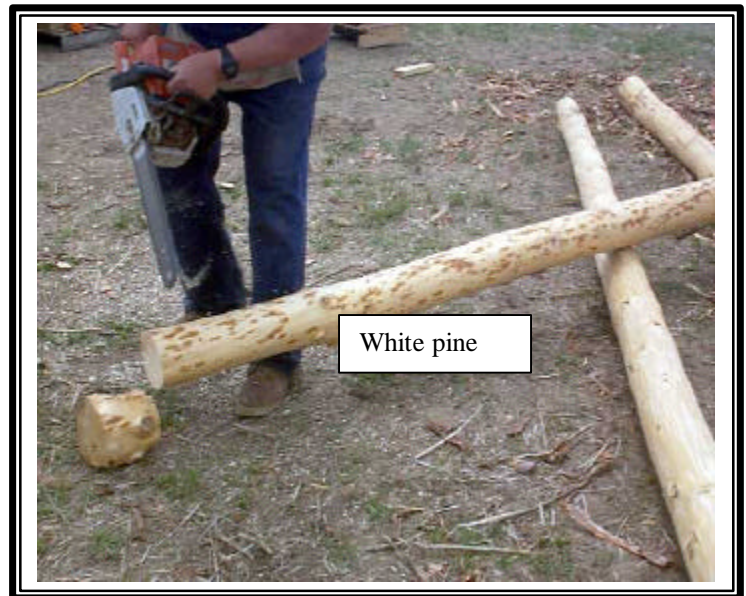


## OLDER HARDWOODS - minor injury

Older conifers and hardwoods typically have thicker bark thus some of the trees suffered only minor damage. The aspen on the right has multiple wounds. If the tree does not suffer any further stresses (drought, defoliation), the tree can be expected to close these wounds and continue to grow. The oak below suffered minimal injury. No management action is recommended.



**OLDER WHITE PINE - potentially serious injury.** Some white pine and a variety of hardwoods suffered multiple wounds on the west side of the main stem and damage to the buds. The photo to the right shows a white pine with its bark removed to illustrate the large number of wounds (brown dots). The impact of this type of damage is unknown.

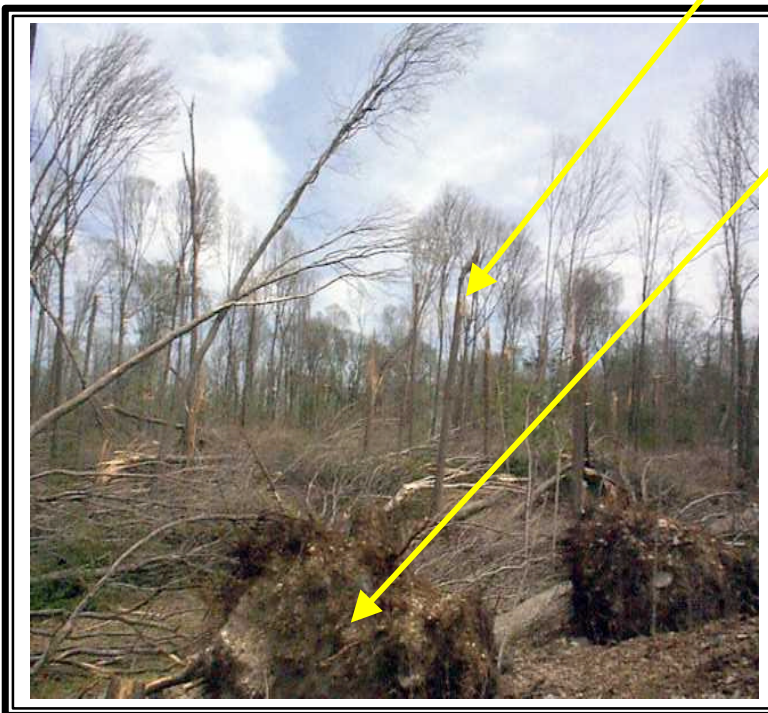


**WHAT SHOULD YOU LOOK FOR TO DETERMINE WHETHER OR NOT THE WHITE PINE ARE SERIOUSLY INJURED?** **Bud damage:** If you stand back and look at the outline of a white pine's crown and >50% of the tips of the branches are brown, consider the injury serious. The brown tips indicate death of NEW growth. The combination of damage to the buds and multiple wounds could cause a reduction in growth and with additional stresses (drought) **could lead to mortality.** If several white pine die and the weather is dry (less than average rainfall), a bark beetle infestation could build in the stressed trees and move to healthy trees. Contact your DNR forester for advice regarding potentially serious pine bark beetle outbreaks.



## NORTHERN HARDWOOD FORESTS

In general, any northern hardwood (ash, sugar maple, beech) that incurred a wound >50 square inches, will be susceptible to discoloration and decay of the wood. If only one wound is present (right) this process will proceed slowly and may take several years to cause significant discoloration and decay. If multiple wounds are present (below) or if the trees have broken off, exposing the wood to air, discoloration will proceed more quickly. Hail also damaged the buds of these trees. Dormant buds are likely to produce new foliage some time during the summer, yet the reduced growing season will reduce growth and may initiate decline and mortality.



## SETTING PRIORITIES

Safety should be a top priority. Cracked, leaning and otherwise compromised trees should be dealt with by professionals trained in hazard tree removal. If you are considering a harvest maximize the value by harvesting hardwoods that will stain quickest. **First Priority:** Trees that were broken on the main stem, exposing wood to air and moisture. Trees with >2 large (>50 square inches) wounds in the lower 16' of the tree. Trees with >50% of their branches destroyed. **Second Priority:** Trees with <50% of their branches broken or destroyed. Trees that have uprooted relatively intact, pulling the whole root plate with them. Trees with a few small wounds (<50 inches square). Take the time to consider all your options and consult with a professional forester for advice regarding any questions on timber sales.

## GETTING ADDITIONAL HELP

For assistance with timber sales in Manitowoc Co. (if you own >5 a of **damaged timber**) contact Scott Fischer, DNR forester, 920-755-4984. For assistance with questions on forest health: Linda Williams [willil@dnr.state.wi.us](mailto:willil@dnr.state.wi.us), 920-492-5872 or Jane Cummings Carlson, [cummij@dnr.state.wi.us](mailto:cummij@dnr.state.wi.us), 608-275-3273.